

NOTES ON SOUTH AUSTRALIAN DECAPOD CRUSTACEA.
PART II.

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PLATES XXI. TO XXIV.

The following paper is a study of a group of Maioid crabs or *Oxyrhyncha*. The first four species and one variety belong to the genus *Halimus*, found on our coast, two of which, *H. laevis*, Haswell, and *H. truncatipes*, Miers, are important on account of their usual large size and frequency of occurrence, and which, as far as my knowledge goes, have never been figured; one, *H. tumidus*, Dana, a figure of which is to be found in another connection, in Kongl. Svenska Vetenskaps Akademiens Handlingar, Band 23, Plate ii., fig. 6, a notable variety of this species, which I have described in detail; and another which is here described for the first time. The others belong to different genera.

In Professor Haswell's catalogue of Australian crustacea the first three species are described; but there are several points of difference which I would like to set forth which are scarcely mentioned by the above authors.

The definition of the genus given by Miers in his classification of Maioid crustacea, Jnl. Lin. Soc. vol. xiv. p. 646, runs thus:—"Carapace sub-triangular, with lateral marginal spines. Three spines above the eye. Merus joint of the outer maxillipeds somewhat auriculated and produced at its antero-external angle. Anterior legs in the male enlarged, palm slightly compressed. Ambulatory legs, with the penultimate joint more or less flattened and dilated towards its distal end. Type, *Halimus auritus*, Latreille. This genus establishes a transition to the Maiidæ."

In the species of this genus under consideration the structure of the orbital region may first attract attention as of importance, especially when compared with the corresponding parts of some members of other genera of the family Maiidæ, with which the relationship of *Halimus* is undoubted: to mention some genera, viz., *Maia*, *Chlorinodes*, *Micippa*, *Schizophrys*, *Paramithrax*, and others, in which, while the lower margin of the orbit is usually very incomplete, being partially formed by the basal joint of the antenna, the upper is divided into, first, a short, usually thickened arcuate portion immediately above the socket of the eye peduncle, and posteriorly to this usually two spines—or more or less spiniform processes—the more posterior one of which is on a slightly lower level. This I take to be the true post-ocular

spine, representing the posterior or outer angle of the orbit; the preceding one I have called the intermediate spine of the upper orbital margin. In *Paramithrax*, *Schizophrys*, etc., these parts are well shown, but have become, as it were, squeezed together to form a more complete orbit; but in the species of *Halimus* under consideration the spines are distant, the posterior portion of the orbit being a widely open space.

Within the genus itself the arrangement of these parts is useful for classification, the anterior arcuate portion being spiniform, dentiform, tuberculate, or merely rounded at the anterior or posterior end, and the two succeeding spines in different degrees of development and relationship.

If *Chlorinodes coppingeri*, Haswell, be examined, these parts will be seen to be much exaggerated in shape.

Also, in the interocular space on each side, near the orbital margin above, there is in these species of *Halimus* a tubercle with a more or less distinct ridge extending from it on to the rostral horn: these elevations are supplied plentifully with the curled corneous bristles so much in evidence amongst these crabs. In the same species of *Chlorinodes* mentioned above this ridge is very distinct: it is also shown in *Paramithrax* and others.

Again, in the species of *Halimus* under consideration a more or less papilliform tubercle is situated on the sub-hepatic region: in *H. truncatipes* this is somewhat anvil-shaped and very distinctive.

In the cardiac region of *Halimus* are usually seen a pair of tubercles showing a tendency to coalesce, represented in the species of *Chlorinodes* again by a lamellar, bifid structure which is very prominent.

Lastly, in these allied species, the chelipeds of the males are subject to great variation as to size, their enlargement apparently taking place well on in the life of the animal, as in some specimens they scarcely exceed those of the female. I would instance the case of *Leptomithrax spinulosus*, Haswell, where certain males—doubtless adults, on account of size and being covered by much of the usual foreign matter—have the chelipeds little if at all exceeding in size and shape those of the female, while in others they are massive, with the fingers very unsymmetrical. In *Schizophrys aspera* somewhat similar conditions obtain.

In these four species of *Halimus* the normal chelipeds scarcely differ: in all, the hands become slightly narrower distally in the vertical direction, and are more or less provided with scattered punctations, from which fasciculi of hairs arise.

The following points, therefore, are common to the four species:—The carapace is sub-pyriform, more or less acutely pointed medianly on the posterior border, convex, usually more depressed anteriorly than posteriorly; the rostral horns are well developed and divergent and usually curved outwards; the posterior part of the orbit is widely open, the upper margin consists of, first, an anterior portion forming an arch over the socket of the eye-peduncle, spined or projecting each end; second, an intermediate spine more or less distant from the posterior end; and third, a strong, post-ocular spine, usually pointing forwards, and distant from the intermediate spine at a lower level.

The lateral spines of the carapace are, viz., one on the hepatic region, and three on the branchial, the most posterior of which approaches nearer the middle of the carapace.

The basal antennal joint has a strong spine at the external distal angle, and usually a small one at the internal angle. There is a small conical tubercle close to the base of this joint, on the outer side, usually tipped with hairs.

The external maxillipeds have the ischium joint with its internal distal angle very much produced above the transverse line. The merus joint, inverted-triangular in shape, is rounded and produced at its external distal angle partially covering the end of the exopod, truncate, and the margin insinuate at the internal angle; the ends of the margin thus defined are acute or spined, the following joint originating close to the outer (or upper) end of this margin.

Sub-hepatic and pterygostomial regions each with a more or less conical tubercle.

Chelipeds usually rather weak in the females and in some males, in others much enlarged, with the fingers widely gaping, but not unsymmetrical. The merus has a spine at the distal end above. The carpus is strongly keeled in the males.

Ambulatory legs long, becoming successively shorter behind, the joints mainly cylindrical, the ischium joints each with a small conical tubercle below at the distal end, the penultimate joints more or less expanded towards their distal ends, the expansions usually becoming wider on the more posterior legs. The dactyli curved, sharp, with two rows of small teeth.

Pleon seven-jointed in the males, the fourth, fifth, and sixth coalesced in the females.

The species of this genus are, as in other Maioid genera, well supplied with more or less curved corneous bristles springing in groups usually from the tubercles, rostral horns, etc., and also from the ambulatory legs. These are used for the attachment of foreign substances for purposes of obscuratation.

The genus may be briefly characterised in the following manner: - -

Family MAIIDÆ.

Genus **Halimus**, *Latreille*.

Carapace sub-pyriform, more or less acutely pointed medianly on the posterior border.

Rostral horns divergent, and sometimes depressed.

Orbits incomplete, especially below.

A large lateral spine on the hepatic region.

Three lateral spines on the branchial region.

The basal antennal joint with a spine on its external distal angle.

The external maxillipeds with the ischium joint much produced at its internal distal angle, the merus joint rounded and produced at its external distal angle, truncate at the internal angle.

Sub-hepatic and pterygostomial regions each with a more or less conical tubercle.

Chelipeds usually weak in the females and some males; in other males much enlarged.

Ambulatory legs long. the joints cylindrical, except the propodi, which are more or less expanded towards their distal ends.

Pleon seven-jointed in the males.

Halimus lævis, *Haswell*. Pl. xxi., figs. 1, 1a.

(Pr. L.S., N.S.W., Ser. i., vol. iv., p. 435.)

This species is very variable, especially as to size. The chelipeds of the males are sometimes normal, sometimes massive.

The following characteristics, in addition to those given by Professor Haswell, are tolerably constant in a moderate series of examples noted.

The rostral horns project horizontally. The anterior portion of the carapace is well depressed from the middle of the gastric region forwards, and with a less curve behind. The inter-ocular tubercles are large. There is one well-marked but low tubercle on each epibranchial region, two more faintly marked on the mid-branchial, obliquely placed. A pair of transverse, separate tubercles on the cardiac region, one median conical tubercle on the intestinal region, and between this and the cardiac pair a faint indication of a pair of transverse tubercles: these are more pronounced in some specimens. The tubercles have a tendency in old specimens to become worn away. The branchial regions are marked off from the urogastric and cardiac by a row of pits

lying in the grooves which separate these regions. The posterior margin is more or less pointed medianly, in some examples broad, thick, and polished, in others almost or quite spiniform.

The supra-ocular border is anteriorly thrown into a prominent acute spine; posteriorly there is a smaller one. The intermediate spine is well developed, projecting nearly horizontally, and further than the preceding one; it is situated slightly nearer this than to the post-ocular. The post-ocular spine is long, and is inclined in a forward direction. The hepatic region has a spine about the same size. The three lateral spines of the branchial region successively shorten.

The sub-hepatic tubercle is papilliform, as also is that of the pterygostomial region.

The basal antennal joint has a broad, oblique sulcation, extending from near the external distal angle. The external distal spine is rather small, and is only slightly pressed upward. The remainder of the peduncle is not covered by the rostral horn.

The normal chelipeds have the fingers rather long, approximating nearly their whole length, slightly curved, and minutely dentate.

The segments of the pleon in the male are moderately prominent in the median line.

Length of medium-sized specimen, 45 mm.

Breadth in the mid-branchial region, 33 mm.

Length of rostral horn, 7 mm.

Inter-ocular space, 11 mm.

Length of cheliped, male, 40 mm.

Length of first ambulatory leg, 54 mm.

Halimus truncatipes, *Miers*. Plate xxii., figs. 2, 2a.

(An. and Mag. Nat. Hist., Ser. v., vol. iv., p. 3.)

My specimens agree well with Miers' description. The species attains to as large a size as *H. laevis*. The chelipeds of the male also are capable of assuming the larger development. The lateral spines are stronger, and the tubercles of the carapace more spiniform, also tubercles are shown where in the former species there are merely groups of bristles, the carapace itself is more convex, the rostral horns longer and a little depressed and more divergent. The inter-ocular tubercles are very distinct; there are four papilliform tubercles occupying the front of the gastric region, the two outermost smaller, and not in the same transverse line. The supra-ocular arcuate margin has the anterior spine very prominent but obtuse, the intermediate spine is large, and has a more forward direction than in *H. laevis*. Its position with regard

to the one immediately preceding it is about the same as in that species. There are six tubercles of varying sizes on each branchial region—apart from the lateral spines—and the two cardiac tubercles are distinct. The cardiac and intestinal regions are marked off by sinuous rows of pits, which assume irregular groups on the sides of the intestinal region.

The eyes are rather small.

The sub-hepatic region has the anvil-shaped spine before mentioned.

The external distal spine of the basal antennal joint is large, the internal one very small. There is an oblique sulcation on this joint, as in the preceding species.

This species is common in shallow water at Port Wilunga, Edithburg, and elsewhere, and Mr. Fulton has sent me specimens from Western Port, Victoria.

Length of carapace, 44 mm.

Breadth of carapace, 32 mm.

Length of rostral horn, 9 mm.

Inter-ocular space, 11 mm.

Length of first ambulatory leg, 56 mm.

Halimus tumidus, *Dana*. Plate xxii., figs. 3, 3a.

(U.S. Exploring Exped. Crust., 1, p. 165.)

My specimens of this species are small.

The carapace is very convex, anteriorly depressed, as are much so the rostral horns, which also are somewhat vertically compressed. The tubercles of the upper surface are not strongly marked, but are more numerous than in the preceding species. The inter-ocular tubercles are very low. There is no spine on the posterior border, an intestinal tubercle is present, as also are two on the cardiac region, with a small one tending to become double between them. The anterior portion of the upper orbital margin is merely thickened, rounded anteriorly, and posteriorly scarcely acute. The intermediate spine is nearly horizontal in position, and is near to the post-ocular. The post-ocular spine is well developed, but the remaining lateral spines poorly, especially the last.

The basal joint of the antenna has its external distal spine very large and somewhat compressed, showing well from above, spinulose on its outer margin, and strongly pressed upwards. The internal distal spine is very small, the oblique sulcation wide and shallow, the remaining peduncular joints are almost totally hidden by the rostral horn.

The pleon of the male has the segments scarcely prominent medianly except the first two. The pleon of the female ends in a distinct though obtuse point.

The chelipeds in the male are of moderate size, the hand is short and rather tumid, the fingers are short, narrow, and evenly dentate. The arm is provided with a distal tooth above, and there are faint indications of two more further back. The carpus is strongly keeled with a minute tooth at the proximal end.

The sub-hepatic tubercle is spiniform, and points forward.

The penultimate joints of the posterior pair of ambulatory legs are nearly as much expanded as in *H. truncatipes*.

This is a shallow water species, St. Vincent Gulf.

Length of carapace, 18 mm.

Breadth of carapace, 13 mm.

Length of rostral horn, 3 mm.

Inter-ocular space, 5 mm.

Length of chelipeds, 15 mm.

Length of first ambulatory leg, 17 mm.

Specimens in Adelaide Museum.

Halimus tumidus, var. **gracilipes**, *n. var.* Pl. xxiii., fig. 5.

Carapace very convex. Rostral horns rather slender, well depressed, and divergent, more so from their distal halves, but little vertically compressed. The upper orbital border is anteriorly tuberculate, but not so nearly spiniform as in *H. truncatipes*, the posterior end bears a small, acute tooth, the intermediate spine is well developed and acute, separated from the preceding tooth by a narrow V-shaped cleft, while it is separated from the post-ocular by a much wider space. The post-ocular spine is long, inclined forwards, and is slightly sigmoid in shape. The hepatic region bears a small conical spine. The three lateral spines of the branchial region are moderately developed. The inter-ocular space has two strong conical tubercles, with a smaller one in advance of each; the space between these pairs is somewhat concave, extending forwards to the base of the rostral horns. Five gastric tubercles are arranged in the usual manner, and are well marked; four or six more lateral ones less distinctly. There are two, very small, on the urogastric region. The cardiac region consists of two elevations, each bearing three small tubercles, and behind these there are three median, sub-acute, and well-defined, including one on the posterior border, which is slightly turned up at the apex and slightly bifid. The epi-branchial regions are slightly tumid, each bearing two small tubercles, arranged obliquely, and there are nine or ten more on each branchial region (omitting the lateral spines) more or less developed. There are two or three very small tubercles on each hepatic region. Apart from the tubercles, the sur-

face of the carapace is smooth. The limiting rows of pits between the branchial and cardiac regions are very faintly indicated.

The basal antennal joint is large, broadly sulcate in an oblique manner. The external distal spine is large, but not compressed, and is distant from the rostral horn. There is a small tooth at the inner distal angle. The external margin of the joint is slightly sinuate, and bears two spiniform teeth, one of which is on the distal spine. The remaining joints of the peduncle are not hidden by the rostral horn.

The eyes are well developed. There is a small tubercle tipped with hairs above the ophthalmus.

The epistome is somewhat excavate.

The external angles of the buccal frame are prominent, the margin bearing some small, ill-formed tubercles.

The pleon in the female has the fourth, fifth, and sixth segments very broad and coalesced, medianly sulcate, the groove marked with a few irregular punctations. The first three segments are very prominent medianly, especially the first. The external margin of the coalesced segments is raised. The terminal segment is broad and distally rounded.

The sub-hepatic spine is strong, acute, and points forward. The pterygostomial one is small.

The chelipeds in the female are slender, the merus joint short, not reaching as far forward as the post-ocular spine. It is sub-cylindrical, and bears externally three well-developed, forward-directed spines, the last larger and at the distal end. The carpus bears a small tooth near the proximal end on the outer side. The palm is laterally compressed. The fingers are slender, long, about two-thirds the length of the palm, with minute teeth towards their ends.

The ambulatory legs are long and rather slender. The merus joint of the first pair is cylindrical, and reaches nearly as far as the carpus of the cheliped. The carpus is sub-equal in length to the propodus. The proximal half of the propodus is cylindrical, the distal half not much expanded. The dactylus is slender.

This specimen differs from the typical *H. tumidus* in the following respects:—The tubercles and spines of the carapace are much more accentuated. The inter-orbital region has two tubercles on each side, with a broad, shallow concavity between them. The rostral horns are longer, much slenderer, and little compressed in the vertical direction. The upper orbital border has anteriorly a distinct tubercle and an acute spine posteriorly, the intermediate one being very close to this. There is a strong median tooth on the posterior margin. The second and third joints of the antennal

peduncle are not hidden by the rostral horn. In the cheliped the merus joint bears two strong projecting spines, besides the one at the distal end. The ambulatory legs are longer and slenderer, the penultimate being not so much expanded. The penultimate joint is more than three times as long as broad.

Habitat, St. Vincent Gulf. Dredged by Dr. Verco.

Length of carapace, 18 mm.

Breadth of carapace, 13 mm.

Length of rostral horn, 4 mm.

Length of cheliped, 15 mm.

Length of first ambulatory leg, 24 mm.

One specimen, a female, in Adelaide Museum.

I have referred this specimen to Mr. G. M. Thomson, of Dunedin, who has been good enough to examine it, with the result that it is here recorded as a variety of *H. tumidus*, Dana.

Halimus gracilis, *n. sp.* Pl xxiii., figs. 4, 4a.

Carapace elongate, shrunken, anteriorly moderately depressed. The rostral horns are long, rather slender, very divergent, especially distally, projecting forward horizontally. Tubercles of the carapace not so numerous as in the preceding species: there are two inter-ocular, well marked, two transverse, with three longitudinal behind, on the gastric region, the last of which is almost obsolete; four others laterally placed on the gastric region are also nearly obsolete, one on each epibranchial region, with one a little below and outward from each. The cardiac tubercle is single, and there is one on the intestinal, which is very close to the strong median spine of the posterior border. The rows of pits noticed in the other species are faintly marked.

The supra-orbital border is thin, without anterior tubercle, the posterior end has a small acute point, the intermediate spine is short, and is situated much further from the post-ocular than from the point which precedes it. The post-ocular is longer than the other lateral spines, and projects well forward, the following hepatic spine projects horizontally, and is situated close behind on the prominent hepatic region, behind which the carapace is strongly constricted. The three lateral spines of the branchial region are well developed, rather contiguous, each being curved forwards.

The basal antennal joint is elongate, narrow, the oblique sulcation scarcely indicated. The external distal spine is rather short, scarcely showing from above, the remaining peduncular joints are not hidden by the rostral horn; there is a small spine at the internal distal angle.

The epistome is narrow and rather long.

The anterior angles of the buccal frame are very prominent.

The sub-hepatic and pterygostomial tubercles are papilliform.

The normal chelipeds in the male have the arm sub-cylindrical, the distal spine well developed, and with a well-marked tooth near the proximal end above. The carpus is strongly keeled outwardly, the proximal end very prominent. The palm is compressed, narrowing in the vertical direction towards the distal end. The fingers are moderately long, slightly curved, rather slender, finely denticulate, and approximating for nearly their whole length. The enlarged cheliped sometimes occurs in this species in the males.

The ambulatory legs are long, rather slender, sparingly setose, with the merus joints cylindrical; the carpal and propodal joints nearly equal in length, the propodal little expanded distally. The dactyli are slender, curved, and acute.

The pleon of the male is narrow, the two first segments more so, the third slightly wider than the rest; their median portions are only very moderately prominent.

This species may easily be distinguished from the former ones by its shrunken appearance, by the length of the lateral spines and rostral horns, its single tubercle on the cardiac region, etc. In the position of the intestinal tubercle it resembles *H. aries*.

Length of carapace, 30 mm.

Breadth of carapace, 20 mm.

Length of rostral horn, 8 mm.

Length of cheliped, 34 mm.

Length of first ambulatory leg, 49 mm.

Inter-ocular space, $6\frac{1}{2}$ mm.

Dredged by Dr. Verco, Investigator Straits, 20-30 fms.

Types in Adelaide Museum.

The next species is referred to the genus *Paramicippa*, M.-Edw. I have been able to compare it with *P. tuberculosa*, M.-Edw., and find the following characteristics common to both.

The carapace is rounded behind. The rostral horns are depressed, though not quite so much as in *P. tuberculosa*. The orbits are similar, although in *P. tuberculosa* the intermediate spine has disappeared, but is perhaps represented by the bifid, post-ocular spine. The eye peduncles are long, non-retractile, and project upwards. The basal joint of the antenna is broad and sloping outwards. The second joint of the peduncle (although not compressed) is large and prominent. The external maxillipeds resemble those of *Halimus*. The pleon segments in the female are free. The dactyli of the ambulatory legs are without spinules.

Family MAIIDÆ.

Genus *Paramicippa*, M.-Edw.***Paramicippa hispida*, n. sp.** Pl. xxiv., figs. 6, 6a.

Body thickly covered with long, bristly hairs, especially on the legs, where they are sometimes curved at the tips.

Carapace pyriform, convex, smooth beneath the hairs, most elevated in the protogastric region. The gastric region is broad in front, narrowing behind. The urogastric region is distinct, as also are the cardiac and intestinal. These are separated from the branchial by an irregular shallow groove extending longitudinally from the cervical groove to a shallow meta-branchial depression; this groove is bounded on the outer side by an obscurely marked, rounded ridge following the same direction, but interrupted in the middle. The branchial regions are well rounded, moderately tumid, and without spines. The posterior margin is slightly produced medianly, and rounded.

The anterior portion of the upper margin of the orbit is slightly thickened and strongly arched; the posterior end of the arch is sub-acutely prominent and pressed down behind the eye peduncle; the intermediate spine, which is somewhat compressed and sub-acute, follows close behind with the post-ocular, which is a little longer and also sub-acute, following close after it in the same oblique line. The orbit is very widely open below.

The hepatic region is slightly tumid.

The rostral horns are short, nearly parallel, acute, and much, though not vertically, depressed. Two ridges, with a median groove between, extend from the base of the rostrum to the front of the gastric region, slightly diverging backwards.

The ocular peduncles are very long, project upwards, and are slightly curved in that direction.

The basal antennal joint is short, slightly oblique, sloping outwards, ending distally in a slightly curved, transverse ridge, which on the outer side is produced to a strong spine, projecting outwards and upwards, and but very little forwards, and on the inner side bearing a small tooth. The remaining joints of the peduncle are well clear of the rostral horn, the more proximal one is short and broad, but not compressed.

The sub-hepatic region is tumid.

The pterygostomial region has a compressed tubercle or spine.

The epistome is depressed.

There is a small, rounded swelling between the orbit and the external angle of the buccal frame.

The external maxillipeds are similar to those of *Halimus*, though the internal distal angle of the ischium and the external angle of the merus are not so much produced.

The chelipeds are very weak in both sexes, smooth, unarmed. The merus is short, cylindrical, and slightly constricted near the distal end. The carpus is narrow and rounded above. The hand is not much compressed, and narrows in the vertical direction. The fingers are nearly straight, very faintly toothed, more than half the length of the palm, nearly cylindrical, and with a proximal hiatus.

The ambulatory legs are moderately long, with the pairs not differing much in length, very hairy, the joints cylindrical, the carpal joints longitudinally grooved above. The dactyli are acute and slightly curved.

The male pleon is seven-segmented, the sides slightly sinuate from the third segment. The segments are medianly umbonate, especially at their distal margins; the third segment has a slight swelling on each side; the terminal segment is broadly triangulate. The female pleon has the seven segments distinct.

Length of carapace, 26 mm.

Breadth of carapace, 22 mm.

Inter-ocular space, 7 mm.

Length of cheliped, 23 mm.

Length of first ambulatory leg, 32 mm.

Littoral species, Port Willunga, Mr. W. J. Kimber; Port Lincoln, etc.

Types in Adelaide Museum.

This species has the habit of covering itself with extraneous materials to an excessive degree, scarcely more than the chelipeds and eyes are uncovered. The material consists of sand, calcareous matter, seaweeds, etc., very difficult of removal.

Family MAIIDÆ.

Genus *Micippa*, Leach.

Micippa mascarenica, *Kossman*, var. *nodulifera*, n. var.

Pl. xxiv., figs. 8, 8a.

The carapace is sub-oblong, broadest near the posterior border, depressed—more so in the male. The surface is granulate to tuberculate and nodular. The tubercles or nodules and the larger granules are white, many apparently formed by coalescence of granules: these are much more crowded near the posterior border. Groups have the following positions:—One on each hepatic region, one on each epi-branchial region, one on the meso-gastric, preceded in the median line by two or three large single granules, one on the urogastric and two

on the cardiac region. Three well-marked, compressed tubercles, closely succeed each other on the lateral margin behind the orbit, and behind the last of these are numerous smaller tubercles, which become almost spiniform posteriorly. The median regions are slightly raised, and a strong depression exists in each hepatic region.

The upper margin of the orbit is anteriorly thin and arcuate, with a longitudinal row of granules near the edge. Its posterior end is produced to a slight prominence, the succeeding parts—representing the intermediate and post-ocular spines—are tuberculiform, compressed in the vertical direction, and separated from each other by almost closed fissures. The outer one is similar to those which succeed it on the lateral margin, and has a somewhat T-shape.

The front is strongly declivous, but not vertically deflexed, it is slightly narrower proximally, and faintly crenulate on the sides, terminating in four acute lobes or teeth, the outer ones slightly raised along with the lateral margins, projecting outwards and slightly upwards, the inner ones projecting downwards.

The basal antennal joint is broad, oblique, and much produced at its external distal angle; this is sub-acute and strongly pressed upwards, showing well when viewed from above. The outer margin of the joint is slightly crenulate, the second joint is dilated, the third less so.

The sub-hepatic and pterygostomial regions are tumid and coarsely granular.

The external maxillipeds are like those of *Halimus*. The outer distal angle of the merus is produced and broadly rounded, the distal margin not insinuated, and bearing minute teeth.

The pleon of the male is sub-oblong, proximally a little constricted, the third, fourth, fifth, and sixth segments are sub-equal in length, the terminal segment is rounded to almost semi-circular form. In the female the segments are distinct.

The chelipeds are rather weak in the male, smooth, the merus sub-cylindrical, and slightly curved, the carpus is rounded above, the palm is scarcely one and a half times as long as the carpus, the fingers are shorter than the palm, slightly curved, meeting for nearly the whole length of their opposable edges, very faintly toothed.

The ambulatory legs are rather short, the first pair scarcely exceeding the length of the chelipeds, the other pairs becoming successively shorter, the merus joints are sub-cylindrical, the distal ends of these and the carpal joints are nodular, the carpal joints are short, vertically compressed,

and grooved above, the propodal joints are cylindrical, the dactyli are curved, strong, and without spinules.

Length of carapace, 10 mm.

Breadth of carapace, 8 mm.

Length of cheliped, 7 mm.

Dredged by Dr. Verco, S.A. coast, 20 fms.

Specimens in Adelaide Museum.

Family PARTHENOPIDÆ.

Genus *Thyrolambrus*, Rathbun. Pr. U.S. Mus., vol. xvii.

Thyrolambrus excavatus, *n. sp.* Pl. xxiv., fig. 7.

The whole of the body is covered with irregular granules, forming in parts jagged points, becoming more or less spiniform on the ambulatory legs.

Carapace triangular, broader between the lateral angles than long, produced to some extent over the bases of the chelipeds and first two pairs of legs. Surface much eroded, being covered with irregular granules, for the most part connected together by small ridges, forming somewhat stellate reticulations. The regions are well defined, those most in relief are the protogastric and branchial, and most depressed the meta-gastric and intestinal. The meta-gastric depression extends laterally to the margin behind the hepatic region, and posteriorly between the cardiac and branchial to join the intestinal, though becoming shallower. The branchial regions are tri-lobed, the lobes arranged in a triangular manner, the apex forming the lateral angle of the carapace. Of these three lobes the anterior one is the largest. The hepatic region is small and depressed. The epi-gastric region has a deep median excavation, between which and the front is a shallow median groove, which is continued behind the cavity, bifurcating in front of the meso-gastric region to join the meta-gastric depression. The meso-gastric region is triangular, and behind it the median portion of the carapace, after being a little depressed, becomes gradually elevated again at the cardiac region. This has on each side two or more irregular transverse ridges connecting it with the meta-branchial lobe, and posteriorly it is abrupt to the intestinal depression. The sides of the carapace are very declivous, and below the antero-branchial lobe there is a slight excavation, beneath which the margin expands to a ridge immediately above the chelipeds, bearing some spiniform tubercles and uniting anteriorly with the pterygostomial ridge. The latero-posterior and posterior margins are nearly in the same transverse line, the former slightly insinuate, bearing some obtuse points, especially at the junction with

the posterior border. The posterior margin is short, slightly raised, and granulate, with a small transverse ridge, usually bearing three distinct granules close above it.

The front is almost vertically depressed, narrowing, and produced well beyond the orbits, terminating in a small rostral process, which projects downwards between the antennules.

The orbits are nearly circular, the internal sub-orbital angle slightly accentuated.

The basal antennal joint is slightly oblique, becoming narrower distally, barely reaching the sub-orbital angle: the second joint is much smaller, and just reaches the contiguous part of the front; the third joint and flagellum are very small and lie in the orbital cavity.

The epistome is sunken, but strongly bordered all around.

The sub-orbital region is rather tumid: an excavation behind divides it from the sub-hepatic lobe, and joins a large cavity, separating the sub-hepatic from the pterygostomial region.

The external maxillipeds completely close the buccal cavity. The ischium is about twice as long as the merus: its internal distal angle is slightly produced above the transverse line; it has a longitudinal groove, and strongly granulate ridge. The merus is sub-quadrate, its external distal angle slightly overlapping the end of the exopod, its inner distal angle truncated, the space filled by the succeeding joint. The exopod has a longitudinal series of strong granules.

The chelipeds are moderately robust, the merus is thicker proximally, sub-cylindrical, very rough above, with a conical, erect process near the proximal end; anteriorly there are two or three triangular processes, also proximal: the lower surface is more evenly granulate, and has two small projections about the middle; there are also one or two projections posteriorly. The carpus is somewhat flattened above. The hand is trigonous, its upper surface flattened and ascending to the base of the mobile finger, where it is very prominent and jagged. The inner margin bears three compressed processes projecting inwards, the middle one of which is much larger. The lower margin bears a series of five or six forward-projecting, compressed processes, usually acute, extending on to the immobile finger. The outer surface is slightly convex, and bears an obscure tubercle or two about the middle. The fingers are as rough as the hand, very much compressed laterally, the apices are crossed, and when in this position the opposable edges meet.

The ambulatory legs are small, covered with more or less spiniform points; the first pair does not reach as far as the

carpus of the chelipeds: the dactyli are nearly straight. The posterior pair of legs are very short.

The pleon of the female covers the whole of the narrow sternum between the legs: the distal half is slightly broader and is medianly very prominent, the prominence broken by transverse, jagged ridges, which extend to the margins, and on the last segment have a radiate arrangement. In the male the pleon is very narrow, especially the distal half, the sternum showing a deep excavation between its last segment and the base of the buccal frame.

Length of carapace, 19 mm.

Breadth of carapace, 25 mm.

Length of cheliped, 30 mm.

Dredged by Dr. Verco, Investigator Straits, 20-30 fms.

Types in Adelaide Museum.

I am in doubt whether this species should not be placed in the genus *Parthenope*, Fabricius, but its complete agreement with *Thyrolambrus*, as presented by Miss Rathbun, has decided me here.

EXPLANATIONS OF PLATES.

PLATE XXI.

Fig. 1 *Halimus lævis*, Haswell—Natural size.

Fig. 1a. *Halimus lævis*, Haswell—Inferior view of anterior regions. Enlarged.

PLATE XXII.

Fig. 2. *Halimus truncatipes*, Miers—Natural size.

Fig. 2a. *Halimus truncatipes*, Miers—Inferior view of anterior regions. Enlarged.

Fig. 3. *Halimus tumidus*, Dana—Inferior view of anterior regions. Enlarged.

Fig. 3a. *Halimus tumidus*, Dana—Side view.

PLATE XXIII.

Fig. 4. *Halimus gracilis*, n. sp.—Enlarged.

Fig. 4a. *Halimus gracilis*, n. sp.—Enlarged.

Fig. 5. *Halimus tumidus*, var. *gracilipes*, n. var.—Enlarged.

PLATE XXIV.

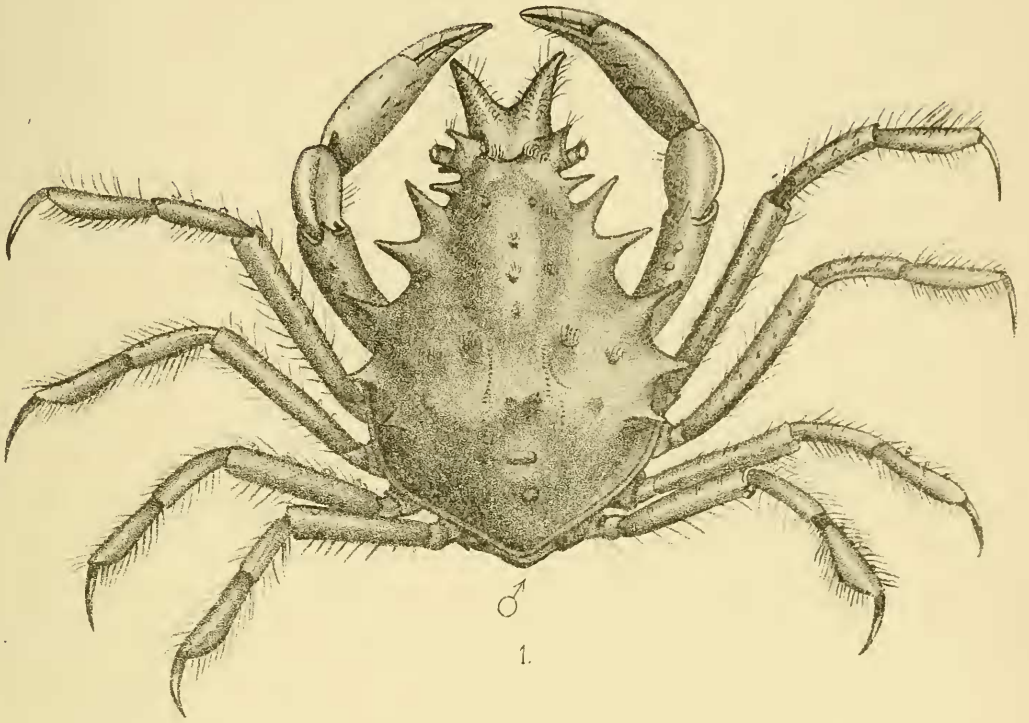
Fig. 6. *Paramiccippa hispida*, n. sp.—Enlarged.

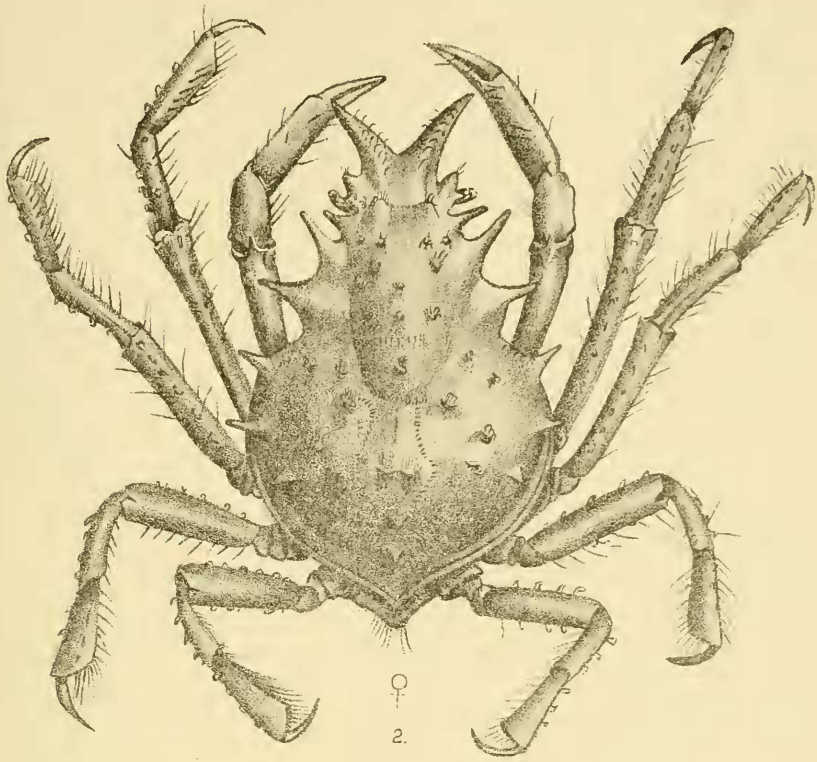
Fig. 6a. *Paramiccippa hispida*, n. sp.—Inferior view of anterior regions. Enlarged.

Fig. 7. *Thyrolambrus excavatus*, n. sp.—Slightly enlarged.

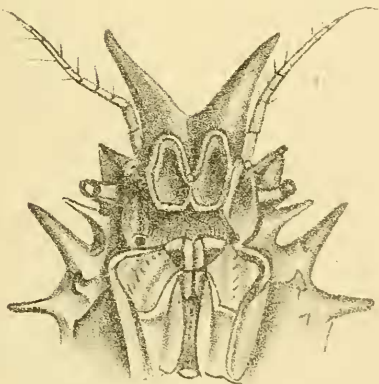
Fig. 8. *Miccippa mascarenica*, Kossman, var. *nodulifera*, n. var.—Enlarged.

Fig. 8a. *Miccippa mascarenica*, Kossman, n. var.—Inferior view of anterior regions. Enlarged.

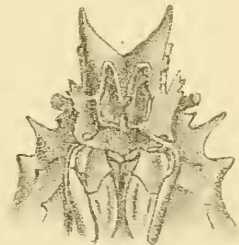




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2.



2a



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